

REMARKS

The present application was filed on March 7, 2002 with claims 1-28. In response to a restriction requirement, Applicants elected claims 1-13, 21-25 and 27 for prosecution on the merits. Thus, claims 14-20, 26 and 28 have been withdrawn. Claims 1-13, 21-25 and 27 are therefore pending with claims 1, 21 and 27 being the independent claims.

In the outstanding Office Action, the Examiner: (i) rejected claims 7, 11 and 24 under 35 U.S.C. §112, second paragraph, as being indefinite; (ii) rejected claims 1-6, 8-10, 12, 21-23, 25 and 27 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,265,232 to Gannon et al. (hereinafter “Gannon”); and (iii) acknowledged allowable subject matter in claims 7, 11, 13 and 24.

Applicants appreciate the indication of allowable subject matter in claims 7, 11, 13 and 24. In this response, Applicants traverse the §112 and §102(b) rejections for at least the following reasons.

Regarding the §112 rejection of claim 7, Applicants respectfully assert that the meaning and scope of the term “cost” is completely clear. First, the claim further defines the “cost” that is being referred to, i.e., “a cost for the central cache to provide the object.” Second, examples of “cost” in terms of a cache or any computing-related component are well-known to those having ordinary skill in the art. By way of example only, cost to a cache to provide an object may include performance expense, time expense, and, to the service provider maintaining the cache, this may translate into monetary expense. Thus, for at least these reasons, Applicants believe that the term cost is completely clear. Accordingly, Applicants respectfully request withdrawal of the §112 rejection of claim 7.

Regarding the §112 rejection of claims 11 and 24, Applicants again respectfully assert that the meaning and scope of the phrase “the resource becoming a bottleneck” is completely clear. By way of example only, those having ordinary skill in technology fields such as processor and memory design/management and distributed network design/management would fully appreciate the meaning of the phrase “the resource becoming a bottleneck.” By way of example only, a computing resource may become a bottleneck if it becomes a source of congestion, obstruction and/or stoppage of some process or flow in a system. The reason that a resource may become a bottleneck clearly depends

on the resource and its usage. The Examiner's suggestion in paragraph 2 of the Office Action could be one example of a cause of a bottleneck, but certainly not the only cause. Thus, for at least these reasons, Applicants believe that the phrase "the resource becoming a bottleneck" is completely clear. Accordingly, Applicants respectfully request withdrawal of the § 112 rejection of claims 11 and 24.

Regarding the § 102(b) rejection of claims 1-6, 8-10, 12, 21-23, 25 and 27, Applicants respectfully assert that Gannon fails to teach or suggest all of the limitations in independent claims 1, 21 and 27.

It is well-established law that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Applicants assert that the rejection based on Gannon does not meet this basic legal requirement, as will be explained below.

The present invention, for example, as recited in independent claim 1, recites a method for managing cached data objects, the method comprising the steps of: (i) storing at least one data object in a central cache; (ii) replicating the at least one data object in at least one local cache, the at least one local cache being in communication with the central cache; (iii) maintaining, in accordance with the central cache, a directory describing content of the at least one local cache; and (iv) in response to a change to cached data, the central cache updating at least a portion of content stored thereon and coordinating an update of at least a portion of content replicated on the at least one local cache using the directory to determine at least one data object in the at least one local cache which should be updated in accordance with the change. Independent claims 21 and 27 recite, *inter alia*, similar limitations.

Thus, the invention recites a central cache that, "in response to a change to cached data, updat[es] at least a portion of content stored thereon and coordinat[es] an update of at least a portion of content replicated on the at least one local cache" That is, the central cache, itself, intelligently coordinates the updating of local caches. This is a significant difference from Gannon and any other system that merely discloses L1, L2 and L3 caches.

As is known, the conventional storage hierarchy associated with L1, L2 and L3 caches involves a processor (e.g., CPU 1 through N in FIG. 1 of Gannon) attempting to access data through the storage hierarchy, e.g., if data is not available at L1 cache, try L2 cache; if not available at L2 cache, try L3 cache, etc.

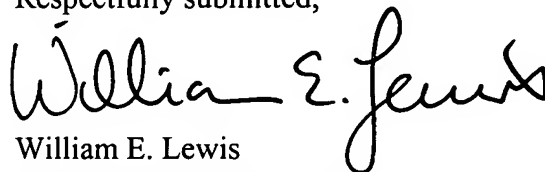
However, neither Gannon nor any of the systems that merely use an L1, L2 and L3 cache hierarchy disclose a central cache that, "in response to a change to cached data, updat[es] at least a portion of content stored thereon and coordinat[es] an update of at least a portion of content replicated on the at least one local cache . . .," as in the claimed invention. That is, unlike the central cache in the claimed invention, the L2 cache in Gannon, itself, is not capable of intelligently coordinating updates.

Regarding claims 2-13 and 22-25, it is respectfully asserted that such claims directly or indirectly depend from independent claims 1 and 21 and are therefore patentable for the same reasons that claims 1 and 21 are patentable. However, it is also respectfully asserted that said dependent claims are patentable because they recite patentable subject matter in their own right.

In fact, the present Office Action fails to specifically address each and every limitation recited in such dependent claims. That is, other than generally referring to Gannon with respect to object requests and LRU schemes, the Office Action is silent to the limitations actually recited in many of the dependent claims.

In view of the above, Applicants believe that claims 1-13, 21-25 and 27 are in condition for allowance, and respectfully request withdrawal of the §102(b) rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William E. Lewis". The signature is fluid and cursive, with the first name "William" being the most prominent part.

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